is dead, and his colleagues have no records of his experiments; Kings' College are unable to trace Barrow, and have no records of his work; and so far Philips at Eindhoven have not been able to help. From 1928, to the present day, scientists of many nationalities have attempted to explain the phenomenon of long-delayed echoes; I have checked 26 references to date, but in every case where echo sequence are quoted, those of 11 October 1928 and the same 21 of 24 October 1928 are quoted as typical. There seems little possibility of bridging the gap between the signals of October 1928, and those heard in May 1929.

To be continued.

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VII. BIOLOGY

THE DIRE WOLF

Ivan T. Sanderson

Some years ago, an old friend of mine, Tex Zeigler, initially a professional cameraman but since then an independent producer-director out on the Coast, made an extended trip to Alaska. At heart, Tex was always a naturalist, having for years tottered around New York with the most beautiful white Samoyed dog anybody had ever seen. And perhaps it was this that led him somewhat inexorably to wolves. While in Alaska, he met several people who had local wolves as pets or who were breeding them or cross-breeding them with Huskies and so forth; and he brought back some magnificent film. But one thing puzzled him; and when he told me about this, I must admit to having been a bit sceptical. It sounded like mere 'exaggeration' and, having seen those Golden Eagles and Ravens in the northwest, I was quite prepared to accept the possibility of truly giant wolves and other animals in Alaska. They really grow big up there. However, Tex made a few points about what he called the "great white wolf" that I jotted down at the time.

Some fifteen years later, another friend —whom I shall identify only as Frank— who had just returned from the (in)famous Nahanni Valley in the Canadian Northwest Territories, rather sheepishly gave out with just the same thing. This chap was a professional truck mechanic and a pretty hard-boiled 'cooky', and had just returned from getting five other people into and out of that rather dangerous valley. He is not given either to exaggeration or more especially to any kind of speculation upon wild life. He'd been up there in charge of transport; and he had only stumbled upon this item when out hunting for his daily food with an Amerindian friend. His firsthand account comes in a moment, but I should put on record now that almost all of the details he offered jibe exactly with what Tex Zeigler had told me long before.

Pondering this matter, I wrote to several other friends who have spent time on Amerindian myth, legend, and folklore; and, sure enough, Loren Coleman came through with an extract from an old historical record in the files of the University of Indiana. This was a report of a group of three trappers, possibly Amerinds, who had a camp on the side of a lake in northern Michigan and, according to an early colonial record, had encountered a "Waheela". One retired precipitately to the nearest settlement, the other two following it with their guns. Their mangled remains, surrounded by "wolf" tracks, were found the next morning. This story was typical of many we had heard over the years from all across forested Canada. And, before we go any further, we'd better get the bit about Canada straight.

Canada is the second largest country in the world, with a total land area of 3,851,800 square miles. It contains the second largest forest in the world, some 4000 miles longitudinally; which is beaten only by the so-called 'Taiga' forest of Russia and Siberia. Canada also stretches from north to south some 3000 miles. The northern 20-odd degrees, above the Arctic Circle, is mostly tundra, barrenlands, and ice-fields on the great Islands. The strip between this and the U. S. border, covering some 24 degrees of latitude, is mostly an unending forest of small conifers with some scattered hardwood trees. Only a narrow strip, on an average about a hundred miles wide, along the southern edge of

this great forest, is inhabited; and, even then, there are great gaps as one travels from the western provinces to the eastern. There is an awful lot of room in Canada, and if anybody insists that "something" can not exist therein, he is just a plain idiot.

What Tex Zeigler first told me, and then Frank came up with, was as follows.

There are still an awful lot of wolves in Canada, and they vary greatly in size and color, just as they do elsewhere; but most of them are either white all the time, or seem to turn white in the winter when they change their coats. However, some wolves grow exceptionally big, and it seems that some of these leave the tribe and go off by themselves. At this point Tex took a different line from Frank. It was his expressed belief that these huge loners were just that —i.e. huge, old wolves that lived alone. Frank, however, came up with something quite else; and, believe me, he had never heard of a "Dire Wolf" or the Wahella legend. What he said had happened to him was as follows.

He had gone up the Nahanni River with an Amerind, whom he had befriended, leaving his American pals at a camp down below the Virginia Falls. The Amerind and his family were on their way home way up-river. They paddled all day and then made camp for a time on flats at the mouths of one of the river torrents coming down from the high mountains that enclose the Nahanni Valley. As occasion arose, they went hunting for meat; the whole area being literally crawling with game, such as grouse. Frank carried a 12-guage with birdshot and heavy ball; his local pal used a single barrel with buckshot.

One day, they went up a small valley onto a little plateau covered with grass and small bushes but surrounded by massed forest below a steep bank. The local hunter told Frank to stand out on this little plateau to take anything that he could drive out of the woods. He was aided by a nondescript dog that was definitely not a trained hunter! In due course, Frank heard some noises at the edge of the forest but, thinking that it was either the idiot dog or the hunter coming back, he did not —as the saying goes— "come to the ready". Thus, when some bushes at the border of the plateau began to move about, and in a manner that could not have been caused either by the little dog or the hunter, he called out, but got no response. Then, suddenly, Frank found himself confronted by what he at first took for the grand-daddy of all wolves.

He described it —and he said that it was, by this time, no more than 20 paces away— as an enormous white wolf, with very long, rather shaggy hair, but with a very wide hear; and standing about three feet, six inches at the shoulder.

Instinctively, he fired both barrels, and he says that he is sure that he hit it on the left flank, but it just looked at him, and then turned around and ambled back toward the bushes. He reloaded almost automatically, and fired at the place where the creature had entered the bushes; but the thing just went away. At this point Frank's local friend called out to him from nearby in the forest and asked what the heck was going on; and, in a few moments, he appeared with his little dog from somewhat to the left. Frank told him what he had seen and what he had done. The Amerind looked at him for a moment, and then took off for the river without a further word.

Frank is a tactful man. That is why he got on so well with both the oldtime "Whites" in the area and with the local Amerinds. He did not press the point, but eventually his local friend loosened up a bit and told him that they had met an animal that is not a wolf and which is, in point of fact, probably the cause of the now age-old legend of the Nahanni Valley which has for many years been called "The Headless Valley" because a number of prospectors and others known to have gone up it have either failed to return, or have been found in their cabins or sleeping bags with their heads bitten or torn off. (This is not some fairy tale, as the Canadian 'Mounties' can affirm from their police blotters.) There are bears in this area but "head-chopping" is not their way of doing things. Nor is it that of wolves which, as a matter of fact, very seldom attack people; despite the old saying of the north that: "When they smell the bacon they come around".

Frank's Amerindian friend said that these animals were much larger than any wolf; were 'loners'; avoided real wolves; had smaller ears and much wider heads, and rather short legs, with splayed feet. Their tails, he said, were very thick and more like those of otters, while they were scavengers rather than predaceous animals. He also said that they were comparatively rare and lived up near the tundra, but that they sometimes came down in winter. Yet, he also affirmed that they were to be found all the time in this valley, and in some others to the west. So what could this animal be?

For over a century now, palaeontologists have been unearthing the bones of enormous dog-like creatures. The biggest of all was named Andrewsarchus, which had a skull over a yard long, and which was originally found in Mongolia by the famous collector Roy Chapman Andrews. This, however, was neither a dog nor a bear but what is called a Creodont —possibly an ancestor of both, but much more primitive. This monster was found in what are called Eocene deposits, currently dated at some 60,000,000 years ago. Dr. Alfred S. Romer, in his classic Vertebrate Paleontology remarks that this animal was "By far the largest predaceous (land) mammal ever discovered. Beside this monster, a Kodiak Bear would look like a puppy". Bears, dogs, and raccoons appear to have a common ancestry but, along the line, a group of animals that are popularly called "bear-dogs", the Amphicyonidae (or "dogs of doubtful origin"),

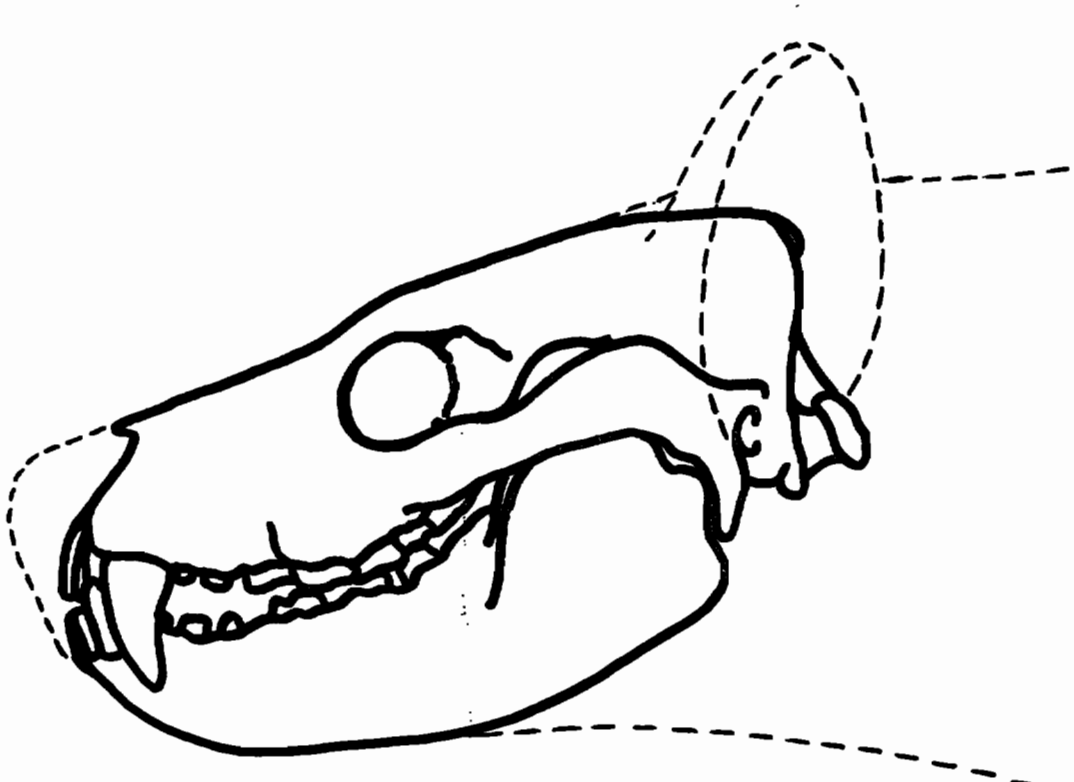

Figure 1. Outline of skull of an Amphycyonid (Dinocyon) from the Miocene of Texas. After W. D. Matthew, 1902. Broken line indicates fleshing-out by Ivan T. Sanderson x ¼.

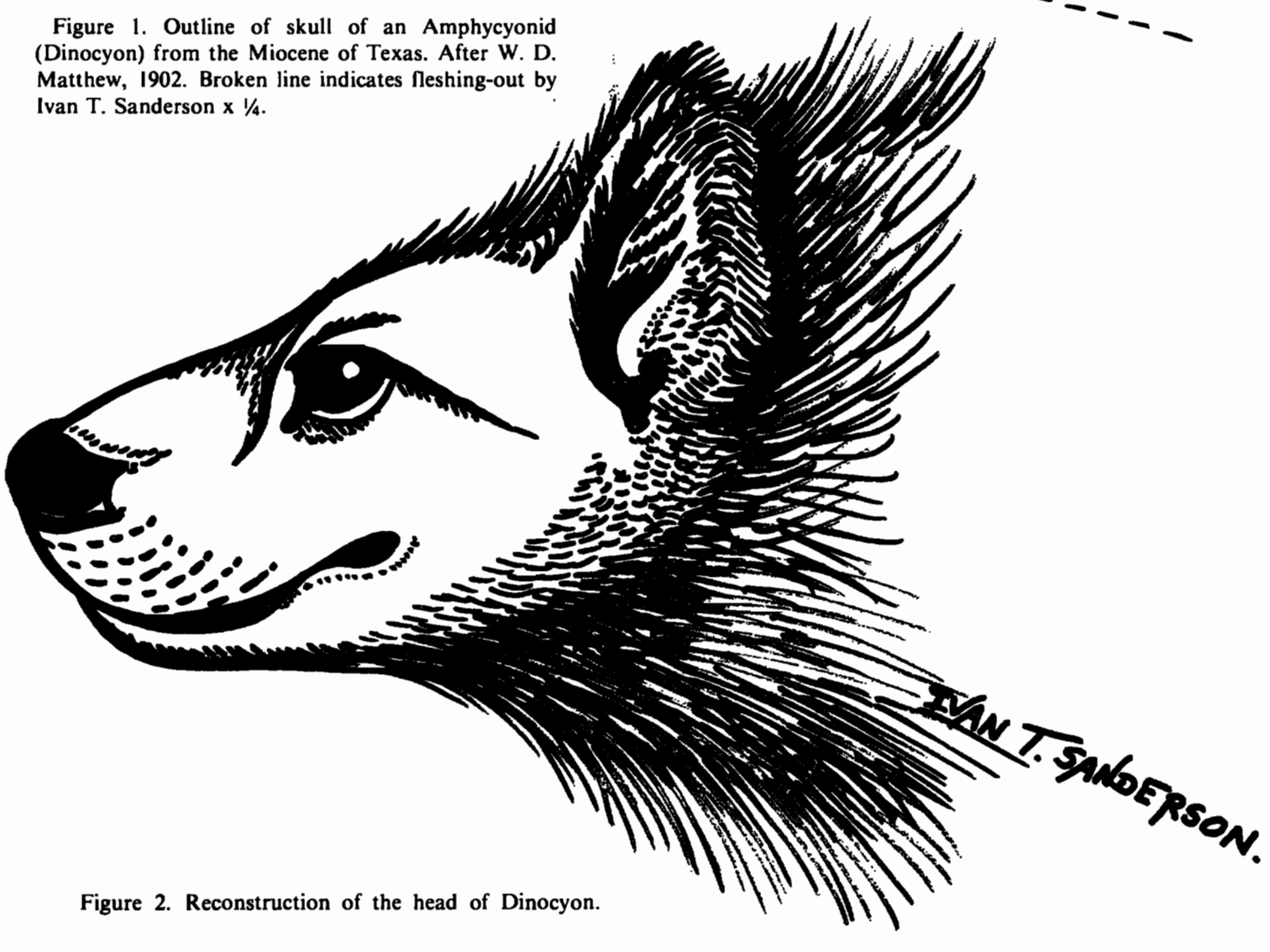

Figure 2. Reconstruction of the head of Dinocyon.

flourished all around the northern hemisphere. These were neither dogs nor bears, but a number of them were of the size of the largest living bears, and some had dog-like features. Some of these huge creatures are known to have lived on until the end of what is called the Pliocene period, and were thus contemporary with some animals that still live, like the muskox and the bisons, and they could well have survived into the age of man, called the Pleistocene; and even into the post-glacial period on this continent. These Amphicyonids appear to have sort of "popped about" between the New and the Old Worlds.

There are three types known from North America; all with long Latin names, but one of which is called Amphicyon, (per se, or, in plain English, the "Ambiguous Doglike Creature") that is of particular interest to us. This is because it is known (from discoveries of its bones) to have been around on this continent until at least the end of the Pliocene period and could, therefore, quite well have lived on into the Pleistocene, and even until the present day —along with animals like the Muskox.

This appalling creature probably looked more like a vast wolf than anything else; though it had rather short and more massive limbs, and a very long and thick tail. Its head seems to have been both massive and rather wide, and its ears were probably rather small compared to those of a dog of equal proportions. But most singular of all was the fact that its feet were all five toed; and these toes were widely splayed, and armed with long sharp claws. It would seem, in fact, to have been more nearly what is called plantigrade (like a bear) than digitigrade (like a dog). The skull of one measures some 20 inches. [see Fig. 1]

These strange monsters were not, apparently and according to experts such as Romer, predaceous, but more likely scavangers, and probably omnivorous like bears. They doubtless found a good living all over this continent when it was inhabited by countless millions of vegetarian animals such as bison, deer, and sheep; and they, no doubt, found plenty to eat in the kills of these great carnivores. However, when the climate changed, and then Man arrived, the whole balance of nature was upset, and many of the larger animals retired into the forests, and particularly into those up north. We now know that the Forest Bison has survived there, so it is quite possible that one of these so-called Bear-Dogs has done likewise.

The Amerinds know nothing of fossil bones, but they persist in their stories of the Waheela; and they insist that it is indeed a 'dire' wolf of some kind. It will be many years before the oil-drillers and the road-builders get around to the wildlife of the Canadian NWT. So, meantime, let us contemplate this suggestion without cavil. How many of you have ever seen a weasel? Even huge animals have a habit of just moving back a bit to watch our clanking machines as they chew their way into the wilds. Twenty paces back would utterly conceal a mammoth. So what's so unbelieveable about a Dire Wolf?

PENNSYLVANIA ABSMERY

As promised, we publish here the full report on hair samples and feces analyzed by Frederick A. Ulmer, Jr., formerly with the Philadelphia Zoological Gardens.

"Here is the report about the hair and feces samples of the Western Pennsylvania 'monster.' I regret that it is not more conclusive, but these things are not easy to work with and present no end of knotty problems.

Hair Sample #1 – 24 Aug. 1973 – Monongahela, Penna. – Tentatively identified as human hair.

Hair Sample #2 – 3 Sept. 1973 – Glassport, Penna. – Positively identified as human hair.

Hair Sample #3 – 26 Aug. 1973 – Latrobe, Penna. – Found near mine shaft. This bunch of hairs intrigued me no end and I spent much time on them. Result – They are the hair of a cow, probably Holstein. Not much luck on immuno-techniques.

Hair Sample #4 – 21 Sept. 1973 – St. Anne's Home, Greensburg, Penna. – This matted mass of light colored hairs had a strong fecal odor about it and I am certain that it was part of some feces. I positively identified it as cat and suspect that it was a domestic cat, for the pigment was too light for a bobcat. A serum protein test was tried on cat antiserum but there was no reaction. A positive reaction would have made it cat beyond the shadow of a doubt. However, I still feel that it is cat and the cellular struction strongly resembles that of the domestic cat.

Feces Sample #3 – This highly comminuted [pulverized, powdery] sample contained a claw bone and some meta-tarsal bones that I tentatively identified as coming from a chicken or a pheasant. There were also a great many chitinous remains of unidentified insects. The stool suggested that of a skunk or a racoon.

Other Fecal Samples were inconclusive.."

Though these reports are disappointing in that none of the specimens proved to be from an unknown animal, this should not deter our members from send-

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Atlas Magazine for April 1972 quotes an advertisement found in Moscow's satirical weekly Krokodil: "Wanted: typist to copy secret documents. Must be unable to read."